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UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/808,884	03/14/2001	Eric John Hewitt	AHA-02101	5252

28960	7590	06/01/2005

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EXAMINER
TORRES, JOSEPH D

ART UNIT	PAPER NUMBER
2133	

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	09/808,884	HEWITT ET AL.
	Examiner	**Art Unit**	
	Joseph D. Torres	2133	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>05 May 2005</u>.

2a) ☒ This action is **FINAL.**   2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-7 and 11-40</u> is/are pending in the application.

    4a) Of the above claim(s) <u>1-7 and 23-40</u> is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>11-22</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>14 March 2001</u> is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some *   c) ☐ None of:

        1. ☐ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____.

        3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1.   Applicant's election with traverse of Claims 11-22 in the reply filed on 05/05/2005 is acknowledged. The traversal is on the ground(s) that "As the classifications for the claims remain unchanged since the first Restriction Requirement, there is no reason that this Restriction Requirement, even if warranted, could not have been made previously". This is not found persuasive because the Examiner has provided additional classification for the newly restricted claims and the restriction is warranted because the Applicant is entitled to two searches in an application. A second search has not been concluded for any of the non-elected claims. The Applicant claims that 1-7 and 11-40 are allowable. If that were so, the Examiner would have to search all of the Applicant's inventions to verify it.

The requirement is still deemed proper and is therefore made FINAL.

Claims 1-7 and 23-40 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 05/05/2005.

This application contains claims 1-7 and 23-40 drawn to nonelected inventions with

traverse. A complete reply to the final rejection must include cancellation of nonelected

claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Oath/Declaration

2.   The Declaration was received on 11/26/2004. The Declaration is accepted.

Response to Arguments

3.   Applicant's arguments filed 11/26/2004 have been fully considered but they are

not persuasive.

The Applicant contends, "Regarding Claims 12 and 13, it is stated that "it is not clear

whether the applicant is attempting to claim an alternative embodiment of claim 11 or

whether the Applicant is claiming additional encoding schemes to supplement the three

encoding devices in claim 11." The Applicants are claiming an alternative embodiment

of claim 11. [See page 9, line 28 to page 10, line 2; see, also, page 16, lines 11 to 14]".

If that is the case claims 12 and 13 contradict claim 11; hence claims 12 and 13 must be

rewritten as an independent claims including all of the limitations of claim 11.

The Applicant contends, "Regarding Claim 21, it is stated that the term "predetermined

number of bits" is a relative term which renders the claim indefinite. The term

"predetermined number of bits" is not defined by the claim, the specification does not

provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention." The Applicants respectfully traverse this rejection. The term "predetemined number of bits" describes the number of parity array bits encoded for updating the hyper parity array which are determined by the information bits and the first set and the second set of encoded data for each row. One skilled in the art would recognize and know how to practice the claimed invention using a "predetermined number of bits" upon reading the specification".

The Examiner disagrees and asserts that since, if that is so, the Applicant should be able to point to the place in the specification and explain how it teaches the term "predetemined number of bits" describes the number of parity array bits encoded for updating the hyper parity array which are determined by the information bits and the first set and the second set of encoded data for each row" and how such action relates to "rotating the hyper parity array by a predetermined number of bits".

The Applicant contends, "Also regarding Claim 21, it is stated that "it is unclear what the Applicant means by rotating. Rotating is a geometric operation." The Applicants respectfully traverse this rejection. Diagonalization is achieved by "rotating" the product code bits. One skilled in the art would recognize and understand what is meant by "rotating"".

The Examiner disagrees and asserts that rotating is generally described in angles or coordinates, not bits. It is still not clear what "rotating the hyper parity array by a predetermined number of bits" means.

The Applicant contends, "Rhines does not teach hyper-diagonally encoding the information bits in the block according to a parity encoding scheme"..."Rhines does not teach use of a hyper set of encoded data generated based on second sets of data". The Examiner disagrees and asserts that red, green and blue planes in Figure 5 of Rhines are plane slices along a hyper-diagonal of the cube in Figure 5 representing a block of data. Figure 4A teaches that the red, green and blue hyper-diagonal planes are C3 column encoded to produce C3 hyper-diagonally encoded planes. Figure 9 also teaches that the C3 encoded hyper-diagonal planes are shuffled and then C2 column encoded to produce C2 shuffled and encoded C3 encoded hyper-diagonal planes and that the C2 shuffled and encoded C3 encoded hyper-diagonal planes are shuffled again and C1 row encoded to produce C1 shuffled and encoded C2 shuffled and encoded C3 encoded hyper-diagonal planes. Since the C3 encoding is along a hyper-diagonal plane, the C2 encoding is along a shuffled hyper-diagonal and the C1 encoding is along a twice-shuffled hyper-diagonal; the C3 encoding, C2 encoding and C1 encoding are substantially hyper-diagonal means for encoding (Note: C3 encoding, C2 encoding and C1 encoding all use an encoding scheme to encode data that was extracted from a hyper-diagonal plane in a block of data). Col. 2, lines 16-22 of Rhines explicitly teaches the uses of a Reed-Solomon parity check code; hence Rhines teaches C1

hyper-diagonally encoding (see Figure 4A, 5, 8 and 9 in Rhines; Note: C1 encoding takes place along a twice-shuffled hyper-diagonal plane; hence is a hyper-diagonal code) the information bits in the block according to a Reed-Solomon parity check encoding scheme (col. 2, lines 16-22 of Rhines) and the C1 hyper set of encoded data generated is based on second C2 and C3 sets of data (see Figure 2 in Rhines).

The Examiner disagrees with the applicant and maintains all rejections of claims 1-11 and 15-26. All amendments and arguments by the applicant have been considered. It is the Examiner's conclusion that claims 1-11 and 15-26 are not patentably distinct or non-obvious over the prior art of record in view of the reference, Rhines; Don S. et al. (US 5392299 A, hereafter referred to as Rhines) as applied in the last office action, filed 04/12/2005. Therefore, the rejection is maintained.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4.   Claims 12 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01.

Claims 12 and 13 are incomprehensible. It is not clear whether the applicant is attempting to claim an alternative embodiment of claim 11 or whether the Applicant is

claiming additional encoding schemes to supplement the three encoding devices in claim 11.

The Applicant contends, "Regarding Claims 12 and 13, it is stated that "it is not clear whether the applicant is attempting to claim an alternative embodiment of claim 11 or whether the Applicant is claiming additional encoding schemes to supplement the three encoding devices in claim 11." The Applicants are claiming an alternative embodiment of claim 11. [See page 9, line 28 to page 10, line 2; see, also, page 16, lines 11 to 14]". If that is the case claims 12 and 13 contradict claim 11; hence claims 12 and 13 must be rewritten as an independent claims including all of the limitations of claim 11.

The term "predetermined number of bits" in claim 21 is a relative term which renders the claim indefinite. The term "predetermined number of bits" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is unclear what the Applicant means by rotating. Rotating is a geometric operation and it is unclear how rotating an abstraction used to explain the operation of an encoder has anything to do with any structural component et within the encoder. The Applicant contends, "Regarding Claim 21, it is stated that the term "predetermined number of bits" is a relative term which renders the claim indefinite. The term "predetermined number of bits" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention." The Applicants

respectfully traverse this rejection. The term "predetemined number of bits" describes

the number of parity array bits encoded for updating the hyper parity array which are

determined by the information bits and the first set and the second set of encoded data

for each row. One skilled in the art would recognize and know how to practice the

claimed invention using a "predetermined number of bits" upon reading the

specification".

The Examiner disagrees and asserts that since, if that is so, the Applicant should be

able to point to the place in the specification and explain how it teaches the term

"predetemined number of bits" describes the number of parity array bits encoded for

updating the hyper parity array which are determined by the information bits and the first

set and the second set of encoded data for each row" and how such action relates to

"rotating the hyper parity array by a predetermined number of bits".

The Applicant contends, "Also regarding Claim 21, it is stated that "it is unclear what the

Applicant means by rotating. Rotating is a geometric operation." The Applicants

respectfully traverse this rejection. Diagonalization is achieved by "rotating" the product

code bits. One skilled in the art would recognize and understand what is meant by

"rotating"".

The Examiner disagrees and asserts that rotating is generally described in angles or

coordinates, not bits. It is still not clear what "rotating the hyper parity array by a

predetermined number of bits" means.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.
4.   Considering objective evidence present in the application indicating obviousness or nonobviousness.

5.   Claims 11-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Rhines; Don S. et al. (US 5392299 A, hereafter referred to as Rhines).

See the Non-Final Action filed 04/12/2005 for detailed action of prior rejections.

Conclusion

6.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Joseph D. Torres whose telephone number is (571)

272-3829. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Albert Decady can be reached on (571) 272-3819. The fax phone number

for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status

information for unpublished applications is available through Private PAIR only. For

more information about the PAIR system, see http://pair-direct.uspto.gov. Should you

have questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) at 866-217-9197 (toll-free).

Joseph D. Torres, PhD
Primary Examiner
Art Unit 2133